

REMARKS

In the December 5, 2003 Office Action, claims 1, 2, 6 and 8 were rejected under 35 U.S.C. §102(b) as being anticipated by Drzeniek, et al. (Cancer Letters, 56: 173-179, 1991) or Prall, et al. (The Journal of Histochemistry and Cytochemistry 44: 35-41, 1996). Applicants respectfully traverse this rejection and submit that the presently amended claims are not anticipated by either of the cited references.

To anticipate a claim or render it obvious, a reference must be enabling. This point was recently reaffirmed in an April 7, 2000 decision of the Court of Appeals for the Federal Circuit (CAFC).¹ Citing *In re Paulsen*,² the court stated that to be anticipating, a prior art reference must:

- 1) disclose each and every limitation of the claimed invention;**
- 2) be enabling; and**
- 3) describe the claimed invention sufficiently to place it in possession of a person of ordinary skill in the field of the invention.**

Neither Drzeniek, et al. nor Prall, et al. meets this standard.

Applicants' claim 1 reads as follows:

1. A pharmaceutical composition for reducing angiogenesis in tumor cells, the method comprising

monoclonal anti-CD66a 4D1/C2 antibody which was deposited with DSMZ (German-Type Collection of Microorganisms and Cell Cultures) Braunschweig under DSM ACC2371 on October 22, and a pharmaceutically compatible carrier, wherein the monoclonal anti-CD66a 4D1/C2 antibody is in a therapeutically active amount to reduce formation of capillaries in the tumor cells by functionally blocking CD66a on tumor endothelial cells.

¹ *Helifix Ltd. v. Blok-Lok, Ltd.*, 54 USPQ2d 1299 (Fed. Cir. 2000).

² *In re Paulsen*, 31 U.S.P.Q.2d 1671, 1673 (Fed. Cir. 1994).

Thus, applicants' claimed invention is a composition for reducing angiogenesis in tumor endothelial cells comprising

1. a monoclonal anti-CD66a 4D1/C2 antibody;
2. a pharmaceutically compatible carrier; and
3. the monoclonal anti-CD66a 4D1/C2 antibody is in a sufficient amount to inhibit formation of capillaries in the tumor by blocking CD66a on tumor endothelial cells.

According to the Office, the claimed antibodies are disclosed in both the Drzeniek, et al. and Prall, et al. references. While the Office speculates that these antibodies would inherently reduce angiogenesis and reduce formation of capillaries, it is the Office's burden to provide evidentiary support of this statement because the references certainly do not provide such support.

As stated above, a reference is not anticipating unless it discloses each and every limitation of the claimed invention, it is enabling, and it described the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention. Applicants submit that one skilled in the art would not realize that the presently claimed composition comprising the claimed antibody would inhibit angiogenesis in tumor cells by blocking CD66a receptors on tumor endothelial cells. Neither reference discusses or describes a pharmaceutical composition containing an antibody that binds to CD66a **to functionally inhibit the CD66a on tumor endothelial cells to reduce capillary growth in a tumor mass.**

Moreover, the Office has not provided any evidence on how a person of ordinary skill in the art would read the cited references and understand that a pharmaceutical composition containing an anti CD66a antibody, in a sufficient amount, would inhibit angiogenesis in a tumor cell without an undue amount of experimentation. *See In re Sheppard* , 144 USPQ 42, (CCPA 1981) (reversing a rejection under 35 U.S.C. Section 102(b) where the asserted prior art reference did not permit someone skilled in the art to possess the claimed invention). Clearly, neither reference is enabling and does not put the claimed invention in

the hands of one skilled in the art. (*In re Sun*, 31 USPQ2d 1451 (Fed. Cir. 1993)). Specifically, in the publication by Drzeniek, et al. it was shown that the monoclonal antibody only binds to a glycoprotein isolated from human bile. There is absolutely no enabling discussion that this glycoprotein was expressed by human endothelial cells, so there is certainly no discussion or teaching of reducing angiogenesis in a tumor including endothelial cells.

Additionally, the Prall, et al. reference does not identically disclose or describe applicants' claimed invention. Instead, Prall, et al. describes the use of some "unknown" antibody (See page 40, column 1, second full paragraph) as being reactive with granulocytes, which are immune cells. Clearly, immune cells are not endothelial cells. Yes, there is discussion that these "unknown" antibodies have been found to bind to specific groups on granulocytes and this binding reduces angiogenesis, however, the reference does not sufficiently direct one skilled in the art to the present invention, which is using the presently claimed antibody for reducing angiogenesis in tumor cells by blocking CD66a receptors on endothelial cells. Thus, the Prall, et al. reference has not "identically disclosed or described" the presently claimed invention as required of an anticipatory reference applied under section 102. (See *In re Felton*, 179 USPQ 295 (CCPA 1973))

In response to the Office's contention that Drzeniek, et al. and Prall, et al. describe antibodies that would inherently reduce angiogenesis and reduce formation of capillaries, applicants submit that it is well settled as a matter of law, that inherency cannot be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish inherency. *In re Oelrich*, 212 USPQ 323 (CCPA 1981). Instead, it must consistently occur each and every time, which is necessary under case law to prove inherency. Proving inherency will be very difficult for the Office, especially because the systems set forth in the cited references could not possibly cause reduced angiogenesis in tumor endothelial cells. As stated above, Drzeniek, et al. describes binding to a glycoprotein isolated from human bile and there is no discussion that this glycoprotein was expressed by human endothelial cells. The Prall, et al. reference discusses the use of "unknown" antibodies that bind to specific groups on granulocytes and this binding reduces angiogenesis, however, the reference is completely silent on using the presently claimed antibody for reducing angiogenesis in tumor

endothelial cells. Thus, the systems set up in both references could not possible cause the reduction of capillary growth in tumors. Moreover, neither reference is enabling to provide guidance to one skilled in the art to go in the direction of applicants' claimed invention.

Accordingly, applicants respectfully submit that claims 1, 2, 6 and 8, as amended, are patentably distinguishable over Drzeniek, et al. and Prall, et al. Withdrawal of this rejection under 35 U.S.C. §102(b) is requested.

Conclusion

Applicants have satisfied the requirements for patentability. All pending claims are free of the art and fully comply with the requirements of 35 U.S.C. §112. It therefore is requested that Examiner Helms reconsider the patentability of claims 1, 2, 6 and 8 in light of the distinguishing remarks herein and withdraw all rejections, thereby placing the application in condition for allowance. Notice of the same is earnestly solicited. In the event that any issues remain, Examiner Helms is requested to contact the undersigned attorney at (919) 419-9350 to resolve same.

Respectfully submitted,



Marianne Fuierer

Reg. No. 39,983

Attorney for Applicants

**INTELLECTUAL PROPERTY/
TECHNOLOGY LAW**

Phone: (919) 419-9350

Fax: (919) 419-9354

Attorney File No.: 4121-124